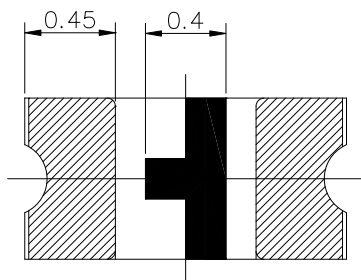
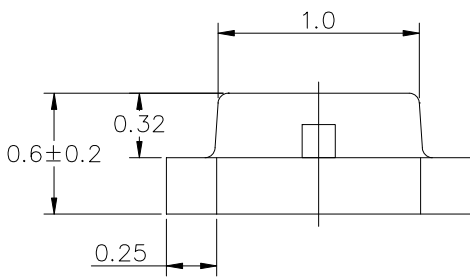
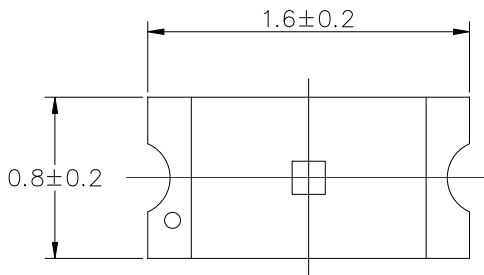


## SURFACE MOUNT LED LAMPS

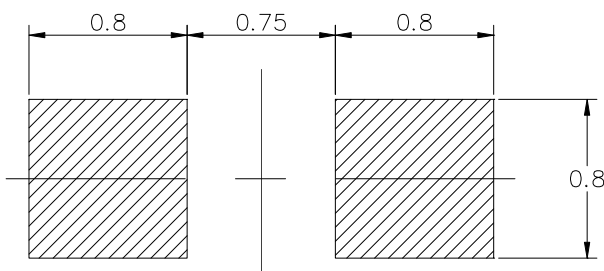
0603 Package Red SMD Chip LED Lamps (0.6mm Height)

Part Number: AL-HUB36A

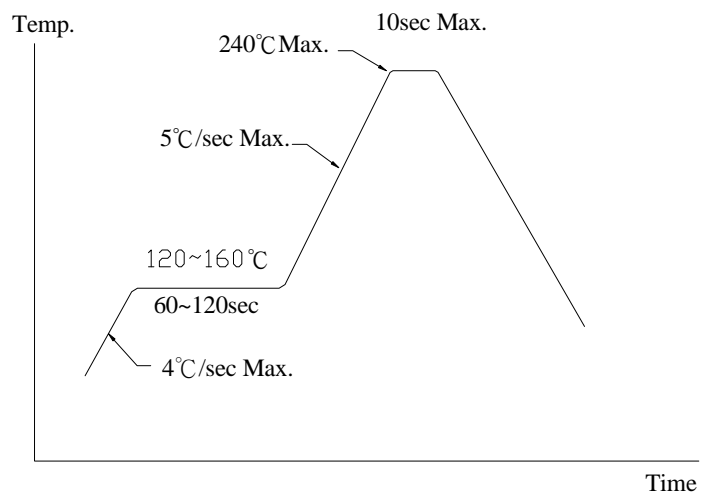
### Package outlines & Re-flow Profile



Recommend Pad Layout



#### ■ Reflow Temp./Time



#### ■ Soldering iron

Basic spec is  $\leq 5\text{sec}$  when  $260^\circ\text{C}$ . If temperature is higher, time should be shorter ( $+10^\circ\text{C} \rightarrow -1\text{sec}$ ). Power dissipation of iron should be smaller than 15W, and temperatures should be controllable. Surface temperature of the device should be under  $230^\circ\text{C}$ .

ITEM	MATERIALS
Resin (mold)	Epoxy
Lens color	Water Clear
Printed circuit board	BT
Dice	AlGaInP
Emitted color	Red

#### NOTES:

1. All dimensions are in millimeters (inches);
2. Tolerances are  $\pm 0.1\text{mm}$  (0.004inch) unless otherwise noted.
3. Soldering terminal may shift in x, y direction.
4. Polarity referring on to the Cathode mark is reversed on the red.

**A-BRIGHT A-BRIGHT INDUSTRIAL CO., LTD.**  
**SURFACE MOUNT LED LAMPS**

Part Number: AL-HUB36A

**ELECTRO-OPTICAL CHARACTERISTICS** (T<sub>A</sub>=25°C)

Parameter	Test Condition	Symbol	Value			Unit
			MIN.	TYP.	MAX.	
Viewing angle at 50% I <sub>v</sub>	I <sub>F</sub> =20mA	2 θ 1/2	130			Deg
Forward voltage	I <sub>F</sub> =20mA	V <sub>F</sub>	1.8	2.0	2.6	V
Luminous intensity	I <sub>F</sub> =20mA	I <sub>v</sub>	–	65	–	mcd
Dominant Wavelength	I <sub>F</sub> =20mA	λ d	–	630	–	nm
Peak Emission Wavelength	I <sub>F</sub> =20mA	λ p	–	625	–	nm
Peak pulsing current (1/10 duty f=1kHz)		I <sub>FP</sub>	100			mA

**Absolute maximum ratings** (T<sub>A</sub>=25°C)

Parameter	Symbol	Value	Unit
Forward current	I <sub>F</sub>	30	mA
Reverse voltage	V <sub>R</sub>	5	V
Reverse current	I <sub>R</sub>	10	μA
Power Dissipation	P <sub>D</sub>	62	mW
Operating temperature range	Top	-30 ~+80	°C
Storage temperature range	Tstg	-40 ~+90	°C

## SURFACE MOUNT LED LAMPS

Part Number: AL-HUB36A

## Test items and results of reliability

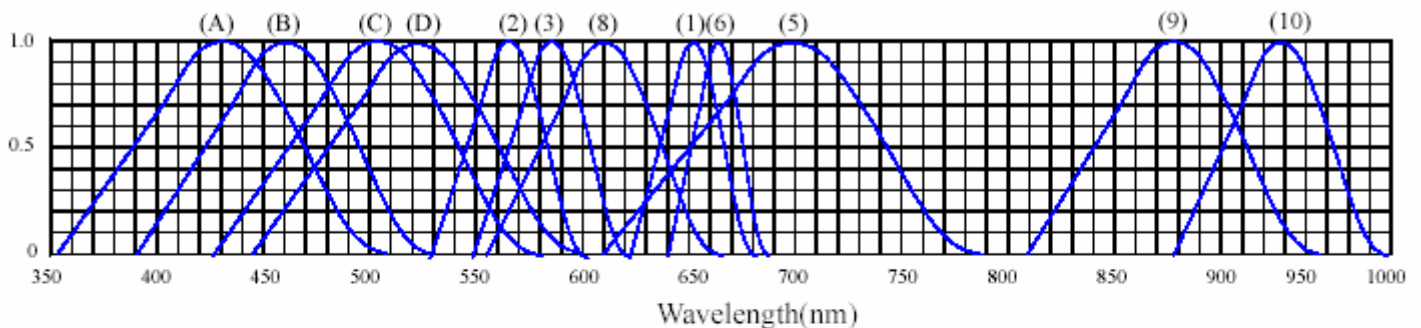
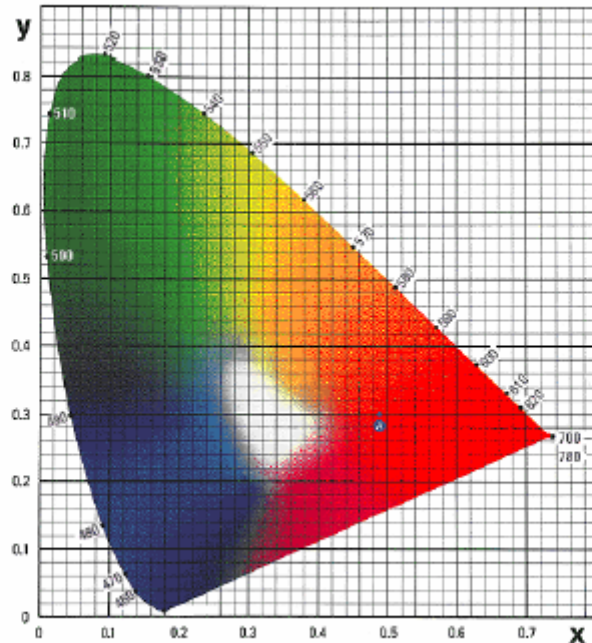
No.	Items	Test Condition	Test Hours/Cycles	Sample Size
1	Solder Heat	TEMP : 260°C±5°C	5 sec	48 pcs
2	Temperature Cycle	90°C ~ 25°C ~ -30°C ~ 25°C 30m 5m 30m 5m	300Cycles	48 pcs
3	Thermal Shick	100°C ~ -55°C 10m 10m	100Cycles	48 pcs
4	Operation Life	I <sub>F</sub> =20mA	1000 Hrs	48 pcs
5	High Temperature Storage	Temp : 90°C	1000Hrs	48 pcs
6	Low Temperature Storage	Temp : -30°C	1000Hrs	48 pcs
7	High Temperature / High Humidity	80°C / R.H80%	1000Hrs	48 pcs

\* Refer to reliability test standard specification for in this line.

## SURFACE MOUNT LED LAMPS

Part Number: AL-HUB36A

### ◆ TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS CURVES



RELATIVE INTENSITY VS. WAVELENGTH( $\lambda_p$ )

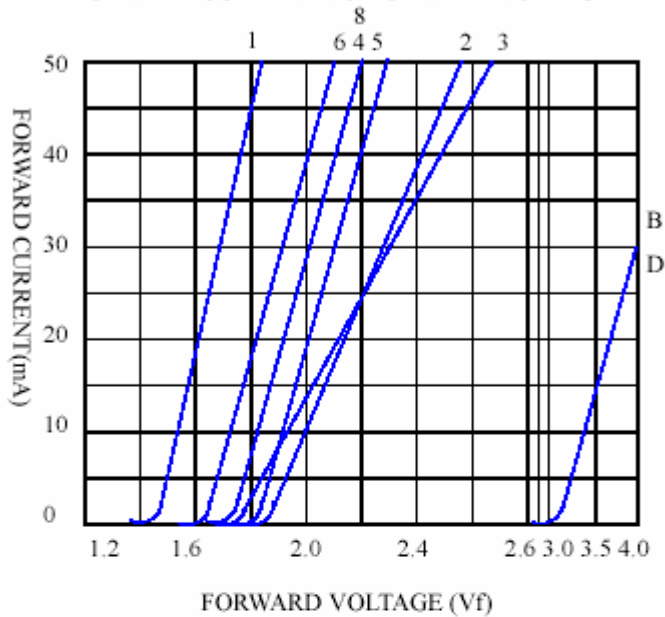
- |   |                                  |
|---|----------------------------------|
| (1) GaAsP/GaAs 655nm/Red                | (9)- GaAlAs 880nm                |
| (2) GaP 568nm/ Yellow Green             | (10)-GaAs/GaAs&GaAlAs/GaAs 940nm |
| (3) GaAsP/GaP 585nm/Yellow              | (A)- GaN 430nm/Blue              |
| (4) GaAsP/GaP 635nm/Orange & Hi-Eff Red | (B)- InGaN 470nm/Blue            |
| (5) GaP 700nm/Bright Red                | (C)- InGaN 502nm/Ultra Green     |
| (6) GaAlAs/GaAs 660nm/Super Red         | (D)- InGaN 523nm/Ultra Green     |
| (8) GaAsP/GaP 610nm/Super Red           |                                  |

## SURFACE MOUNT LED LAMPS

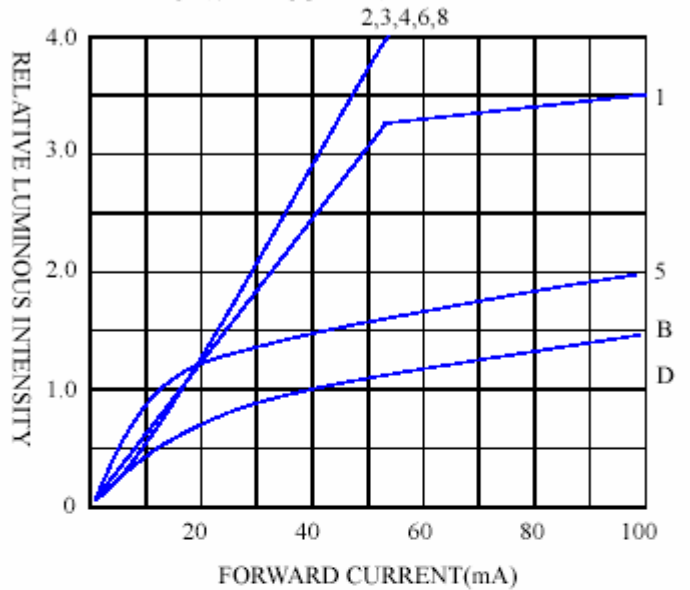
Part Number: AL-HUB36A

### ◆ CHARACTERISTICS DIAGRAMS

FORWARD CURRENT VS. FORWARD VOLTAGE



RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT VS. AMBIENT TEMPERATURE

